

U.S. Patent Application Serial No. **10/030,105**
Amendment dated August 22, 2003
Reply to OA of **April 22, 2003**

REMARKS

Abstract

Applicants' Abstract has been objected to for not being in the form of a single paragraph. A proposed amended Abstract is attached.

The Examiner's Rejections Under 35 U.S.C. §112

The Examiner has rejected claims 1-20 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The Examiner has suggested appropriate corrections.

Applicants have adopted the Examiner's suggestions as follows:

- The phrase "at a ratio" has been replaced with - - in an amount - -.
- The term "particle size" has been amended to "volume average particle size," which was measured by Microtrac Ultra Particle Analyzer (manufactured by Leeds and Northrup). In this machinery, slurry such a L.x is subjected to incidence of laser light. Next, velocity distribution of particles in Brownian motion is measured due to displacement of frequency of scattered light, and particle size distribution is measured.
- The term "occupies" has been replaced with "contains."
- The word - - claim - - has been inserted before the word "1" in claim 20. Claim 19 has been canceled.

The Examiner's Rejections Under 35 U.S.C. §102 and §103

The Examiner has rejected claims 1-20 under 35 U.S.C. §102(b) as being anticipated by, or, in the alternative, under 35 U.S.C. §103(a) as obvious over *Fleischer et al.* (USP 5,256,733). The Examiner has also

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rejected claims 1-20 under 35 U.S.C. §103(a) as being unpatentable over *Shigeto et al.* (JP 06-240100, cited by Applicants).

Applicants have amended claim 1 to include the features of claim 19. The amended claims require that the graft copolymers of claim 1, (A) & (B) be combined with a vinyl-chloride based composition (C) at a 1-30:99-70% by weight ratio, respectively. Applicants respectfully submit that this disclosure is not taught in *Fleischer et al.* or *Shigeto* nor do the references suggest such a limitation. Neither *Fleischer et al.* nor *Shigeto* teach or suggest a graft copolymer with two particle size distribution (one large and one small) contained in a vinyl chloride-based resin. Specifically, one skilled in the art would not look at *Fleischer et al.* or *Shigeto* as teaching graft polymers likely to be successful with vinyl-chloride resins.

In amended claim 1, a vinyl chloride-base resin is utilized as the matrix resin. In *Fleischer et al.*, the matrix resin is a polyoxymethylene (*see*, col. 2, lines 5-6). In *Shigeto*, the matrix resin is an AS resin (acrylonitrile-styrene resin) (*see*, paragraphs [0002] to [0003]). Therefore, the matrix resin, which has improved impact-resistance, based on the graft copolymer, is entirely different between the present invention and both cited documents.

Additionally, both *Fleischer et al.* and *Shigeto* only indicate unilateral improvement of impact strength due to use of a graft copolymer having two particle size distribution in their respective matrix. Specifically, in *Fleischer et al.* it is only indicated that multitaxial impact strength, which is a typical example of the evaluation of a ductile fracture, is improved (*see*, Table 2, col. 10, lines 6-27). In *Shigeto*, it is only indicated that Izod impact strength, which is a typical example of the evaluation of a brittle fracture, is improved.

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However, the present invention discloses that drop-dart strength and Charpy strength are improved with a good balance when the graft copolymer is combined with a vinyl chloride-based matrix. Drop-dart strength is a typical example of the evaluation of a ductile fracture, and a Charpy strength is a typical example of the evaluation of a brittle fracture, as indicated in the present specification (*see*, Tables 1-3, pages 61-63 and page 64). Neither *Fleischer et al.* nor *Shigeto* teach or suggest that using the block copolymer in a vinyl chloride-base resin will result in this due improvement of impact strength.

Hence, the present invention as described in amended claim 1 is not anticipated or obvious in light of *Fleischer et al.* or *Shigeto*.

Claims 1-18 and 20 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the Applicants regard as their invention. It is believed that this Amendment is fully responsive to the Office Action dated **April 22, 2003**.

As to the Examiner's outstanding objection to the Abstract of the Disclosure, as indicated above, the applicants have deleted the current Abstract, and submit herewith a substitute Abstract of the Disclosure in place therefor. Applicant has made the changes to the abstract required by the Examiner only because the Examiner has required such changes. The claims and only the claims in this application define what the Applicants regard as their invention. The amendment to the abstract of the disclosure may reflect one embodiment of the invention but it does not do so in derogation of the subject matter Applicants regard as the invention as claimed at the conclusion of the specification.

The Applicants respectfully request that the substitute Abstract of the Disclosure submitted herewith be approved by the Examiner.

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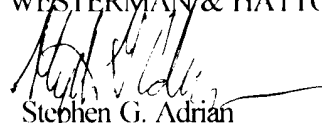
In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Attachments: Substitute Abstract of the Disclosure
Petition for Extension of Time (w/fee)

Q 11 OA HRS Mike Candi 02/020047 Amendment - 1st OA due 7-22-03